

[0059] What is claimed is:

Claims

- [c1] 1.A circuit breaker comprising:
a first contact structure in contact with a second contact structure;
an operating mechanism arranged to separate said first contact structure and said second contact structure; and
an auxiliary magnetic trip system comprising:
a strap configured to conduct a first level of electrical current and a second level of electrical current, said first level of electrical current is a withstand level;
a first u-shaped collar with a first pole face, said first u-shaped collar disposed around said strap;
a trip lever in operable communication with said operating mechanism, said trip lever disposed proximate said first pole face, said trip lever rotatably mounted on an axis; and
a holdback system releasably coupled to said trip lever, wherein said holdback system prevents movement of said trip lever at said first level of electrical current and releases said trip lever at said second level of electrical current.
- [c2] 2.The circuit breaker of claim 1, wherein said holdback system includes:
a latch pin in operable communication with said trip lever;
an armature having a latching end, said latching end releasably engaged with said latch pin; and
a second pole face disposed proximate to said armature.
- [c3] 3.The circuit breaker of claim 2, further comprising a second u-shape collar disposed around said strap, said second pole face is disposed at said second u-shape collar.
- [c4] 4.The circuit breaker of claim 2, wherein said second pole face is disposed at said first u-shape collar.
- [c5] 5.The circuit breaker of claim 2, further comprising a spring in operable communication with said armature.
- [c6] 6.The circuit breaker of claim 1, wherein said holdback system includes:
a pin in operable communication with said trip lever;

an armature having a latching end; and
wherein said latching end is releasably engaged with said pin.

[c7] 7.The circuit breaker of claim 6, wherein said armature is pivotably mounted to said strap.

[c8] 8.The circuit breaker of claim 6, further comprising a spring in operable communication with said armature.

[c9] 9.The circuit breaker of claim 1, wherein said holdback system includes:
a second pole face;
wherein said trip lever disposed proximate to said second pole face; and
wherein said axis disposed between said first pole face and said second pole face.

[c10] 10.The circuit breaker of claim 9, wherein said second pole face is smaller than said first pole face.

[c11] 11.The circuit breaker of claim 9, further comprising a second u-shape collar disposed around said strap, said second pole face is disposed at said second u-shape collar.

[c12] 12.The circuit breaker of claim 9, wherein said second pole face is disposed at said first u-shape collar.

[c13] 13.The circuit breaker of claim 9, further comprising a spring in operable communication with said trip lever.

[c14] 14.The circuit breaker of claim 1, wherein said first level of electrical current is a withstand level.

[c15] 15.The circuit breaker of claim 1, wherein said second level of electrical current is a short circuit level.

[c16] 16.The circuit breaker of claim 1, wherein said first contact structure includes:
a stationary contact arm; and
a contact strap in operable communication with said stationary contact arm.

- [c17] 17.The circuit breaker of claim 1, wherein said second contact structure includes:
an insulating carrier;
a movable contact arm in operable communication with said insulating carrier;
and
a spring arranged between said insulating carrier and an upper face of said movable contact arm.
- [c18] 18.The circuit breaker of claim 1, wherein said first contact structure includes:
a contact arm;
a contact strap pivotably coupled to said contact arm; and
a spring arranged between said contact arm and said contact strap.
- [c19] 19.The circuit breaker of claim 1, wherein said second contact structure includes:
an insulating carrier; and
a movable contact arm in operable communication with said insulating carrier.
- [c20] 20.A method of tripping a circuit breaker comprising:
flowing a first level of electrical current through a strap;
inducing a magnetic force proportional to said first level of electrical current between a first pole face and a trip lever;
preventing movement of said trip lever at said first level of electrical current;
and
releasing said trip lever at a second level of electrical current.
- [c21] 21.The method of claim 20, wherein said preventing includes latching a pin disposed at said trip lever with an armature.
- [c22] 22.The method of claim 20, wherein said releasing includes inducing a magnetic force between a second pole face and said trip lever.